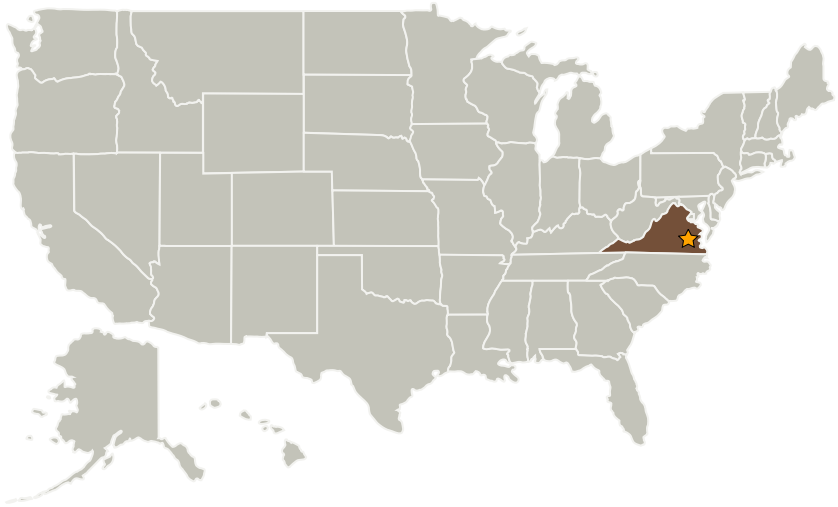
In Situ Wake Vortex Encounter Detection and Reporting System, Phase II

Completed Technology Project (2009 - 2011)

Project Introduction

Wake vortices are a critical constraint to aircraft separation and therefore airportal throughput, which is already at or near capacity at many major airports in the NAS. Improvements to current methods of spacing aircraft could significantly increase airportal capacity, but there is currently limited awareness of wake encounters and information with which to assess spacing in real-time or to design new spacing schemes. AeroTech proposes to improve situational awareness of wake vortices and enhance the prediction of wake vortex transport and decay by continuing development of the In Situ Wake Vortex Encounter Detection and Reporting System (VEDARS). The VEDARS will quantitatively detect wake encounters from flight data; downlink encounter reports in real-time to enhance ATC awareness and enable assessment of spacing schemes; and collect and report meteorological parameters from aircraft for use in wake transport and decay predictions. AeroTech is also proposing to improve the accuracy and reliability of reported wind speed and direction (and hence crosswind estimation) by improving and validating an estimator for sideslip angle. A reliable and accurate crosswind estimate is a key component in predicting the transport of wakes. By the end of Phase II, the operational feasibility concept for the VEDARS will have been established.

Primary U.S. Work Locations and Key Partners



In Situ Wake Vortex Encounter Detection and Reporting System, Phase II

Table of Contents

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Langley Research Center (LaRC)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Small Business Innovation Research/Small Business Tech Transfer

In Situ Wake Vortex Encounter Detection and Reporting System, Phase II

Completed Technology Project (2009 - 2011)

Organizations Performing Work	Role	Type	Location
★Langley Research Center(LaRC)	Lead Organization	NASA Center	Hampton, Virginia
Aerotech Research	Supporting Organization	Industry	Newport News, Virginia

Primary U.S. Work Locations
Virginia

Project Transitions

December 2009: Project Start

September 2011: Closed out

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Technology Areas

Primary:

- TX16 Air Traffic Management and Range Tracking Systems
  - TX16.3 Traffic Management Concepts